

No. 652,707.

Patented June 26, 1900.

A. J. WURTS.

SYSTEM OF DISTRIBUTION FOR ELECTRIC LIGHTING.

(Application filed Feb. 21, 1900.)

(No Model.)

Fig. 2.

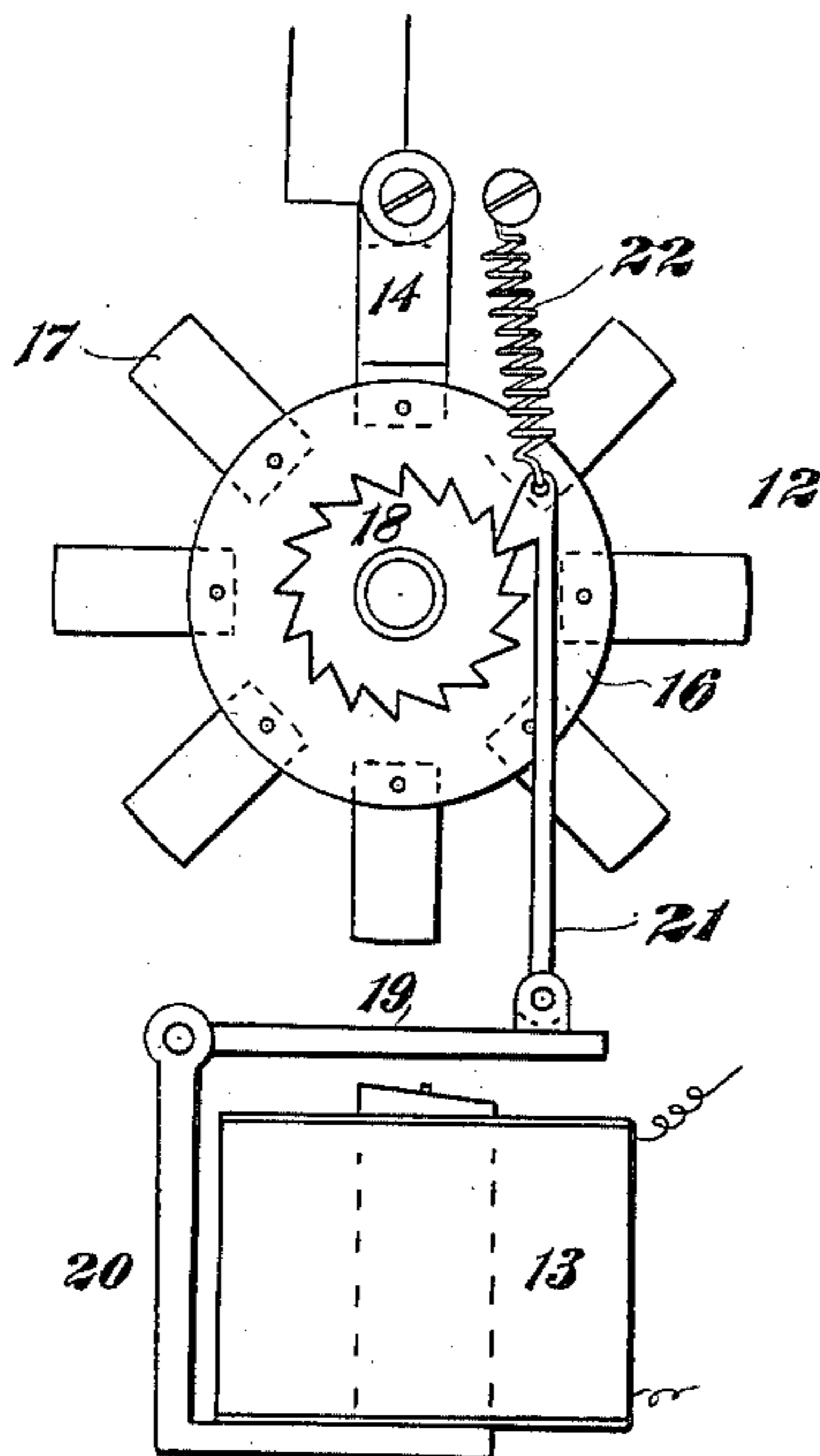


Fig. 3.

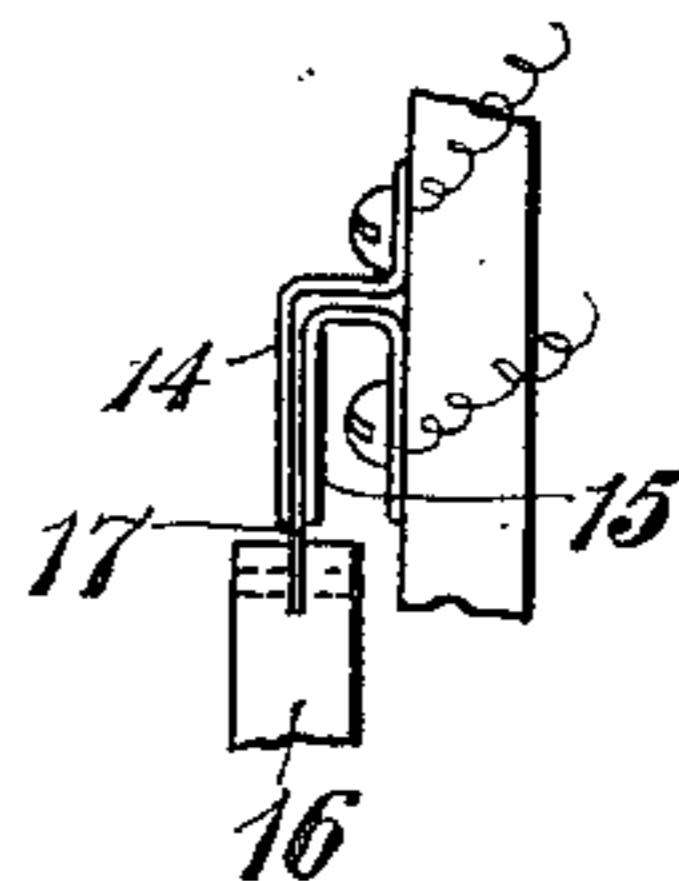
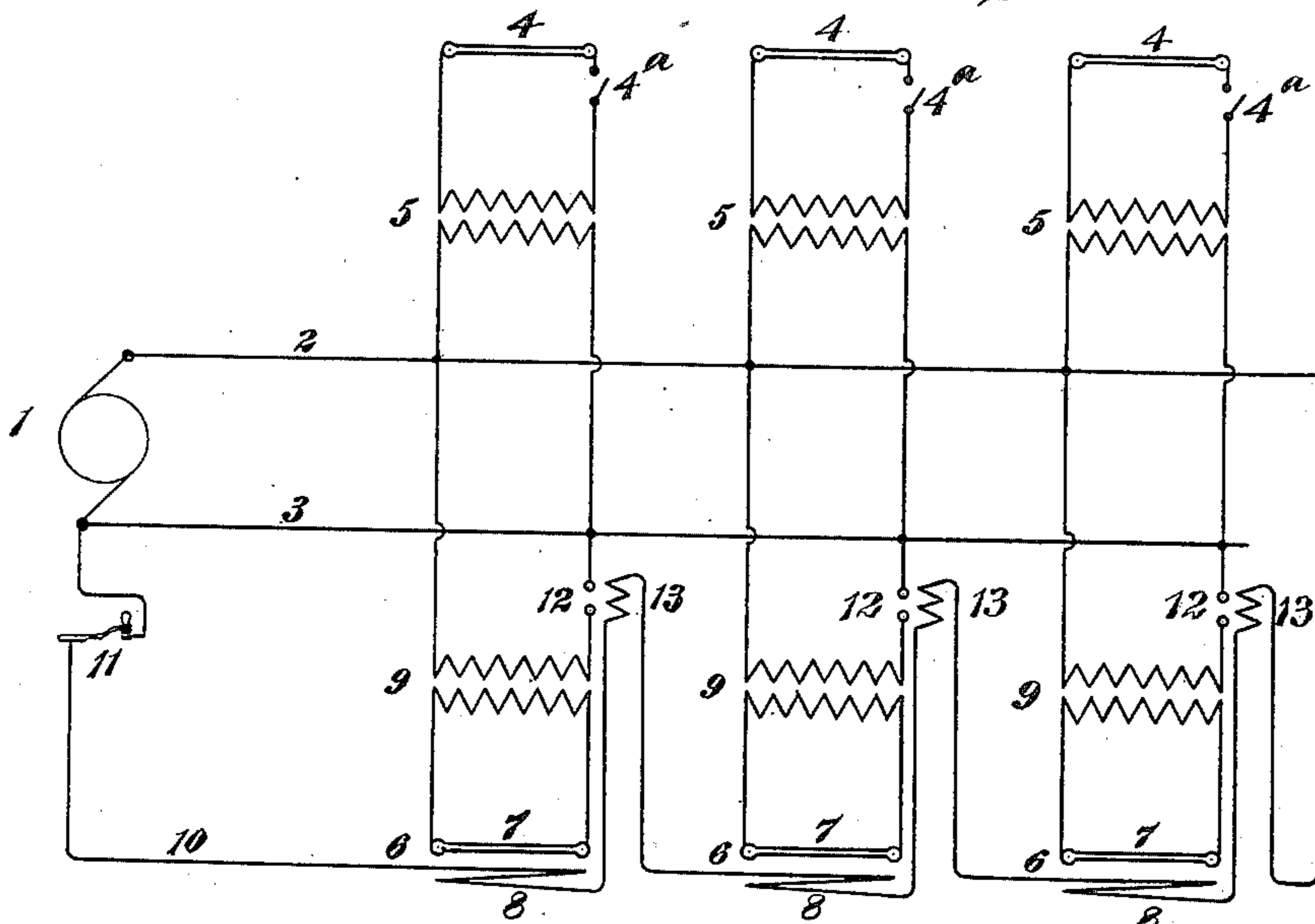


Fig. 1.



WITNESSES:

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ALEXANDER JAY WURTS, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO
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SYSTEM OF DISTRIBUTION FOR ELECTRIC LIGHTING.

SPECIFICATION forming part of Letters Patent No. 652,707, dated June 26, 1900.

Application filed February 21, 1900. Serial No. 6,082. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER JAY WURTS, a citizen of the United States of America, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented an Improvement in Systems of Distribution for Electric Lighting, of which the following is a specification.

My invention relates to systems of distribution for electric lights, and particularly to systems employing lights of the class in which the light-emitting body becomes conductive only when its temperature is raised to a proper degree by the application of heat from an external source.

The object of my invention is to provide a system in which house and street lights may be operated from the same circuit and in which the street-lights may be cut into and out of circuit from the central station without interfering with the operation of the house-lights.

In the accompanying drawings, Figure 1 is a diagram of a system embodying my invention. Fig. 2 is a detail view of an automatic-switch mechanism for cutting street-lights into and out of circuit, and Fig. 3 is a detail view of a portion of the mechanism shown in Fig. 2.

It is well known that outdoor or street lights are usually kept burning only during the night or a portion of the night and that it is desirable to have means available for cutting all of the street-lights of a system into and out of circuit simultaneously from a central station. It is also well understood that the circuits supplying lamps for indoor-lighting should be so constructed and arranged that any indoor-lamp or any number of such lamps may be available for use by the consumer at any time in the day or night.

In order to provide for both conditions of service from a single supply-circuit, I have devised the means shown in the accompanying drawings, in which 1 represents a generator or plurality of generators at the central station, and 2 and 3 the conductors leading therefrom, from which both house and street lights are supplied with energy. The house-lights are here represented as consisting of glowers 4; but it will be understood that suit-

able heaters, current-restraining devices, and cut-out switches for the heater-circuit, &c., will be employed, as is usual in connection with this class of lamps. Each of the glowers 4 is here shown as supplied with energy from the secondary of a transformer 5, the primary of which is connected across the mains 2 and 3. Each glower-circuit is shown as provided with a hand-switch 4^a.

The street-lamps 6 are indicated as comprising glowers 7 and heaters 8, the glowers being supplied from the secondaries of transformers 9, the primaries of which transformers are connected across the mains 2 and 3. It will also be understood without further illustration that each of the lights 6 is provided with the necessary auxiliary devices, such as are usually employed in lamps of this class.

For the purpose of cutting the lamps 6 all into and out of circuit simultaneously, I connect the heaters 8 in series in a conductor 10, leading from one side of the generator or generators 1, and in this conductor, at the generating-station, I locate a hand-operated switch 11. In the primary circuit of each transformer 9 I locate an automatic switch 12, operated by an electromagnet or solenoid 13, all of the solenoids or magnet-coils being connected in series with the heaters 8 in the circuit 10. By referring to Figs. 2 and 3 it will be seen that the switch 12 has two stationary terminals 14 and 15, connected, respectively, to the main conductor 3 and to one terminal of the primary of the transformer 9. The movable member of the switch comprises a disk 16, of insulating material, projecting from the periphery of which are several contact-blades 17, eight of such blades being shown in the drawings. The disk 16, or the shaft on which it is mounted, is also provided with a ratchet-wheel 18, having twice as many teeth as there are contact-blades 17. The magnet 13 is provided with an armature 19, pivoted at one end to a bracket 20 or other suitable support and having its other end connected to one end of a pawl 21. The other end of the pawl 21 is provided with a hook in position to engage with the ratchet-teeth on the wheel 18, a coiled spring 22 being provided to normally

hold the armature 19 and pawl 21 in their uppermost or initial positions.

Assuming that the several parts are in the positions indicated in the figures of the drawings and that the glowers of the lamps are in conductive condition, it is obvious that the lamp-circuits are all closed and the lamps in operation. If now it is desired to cut the street-lights out of circuit, the switch 11 will be closed, thus sending current through the heaters and magnet-coils 13. The latter will attract their armatures, and thus by means of the pawls 21 and the ratchet-wheels 18 rotate the disks 16 one step and break the circuits of the primaries of the transformers 9. In order to relight the lamps, it is merely necessary to close the switch 11 and maintain it closed until the heaters have raised the temperatures of the glowers to the conducting-point. It is obvious that the glower-circuits will be closed immediately succeeding the closing of the switch 11, since the magnets 13 will act upon their armatures and through the pawls 21 and ratchet-wheels 18 rotate the disks 16 another step and bring the next plate 17 of the series into engagement with the contact-pieces 14 and 15; but the retention of the switch 11 in its closed position for a longer period is necessary in order to give the heaters time to raise the glowers to their conducting temperatures.

While I have shown a specific form of switch and switch-actuating apparatus, it will be readily understood that these devices may be varied as to form, dimensions, and arrangement without departing from my invention, and I therefore do not limit myself to the specific details here shown and described.

I claim as my invention—

1. In a system of distribution for electric lamps of the type described, a source of cur-

rent and a plurality of lamps the glowers of which are connected in parallel and the heaters of which are connected in series to said source, in combination with a manually-operated switch in the conductor supplying said heaters, a switch in each glower-circuit and means for simultaneously actuating said glower-circuit switches to alternately close and open said circuits by successive closing movements of the heater-circuit switch.

2. A system of distribution for electric lamps of the type described, comprising a source of current, a plurality of lamps supplied in parallel from said source and severally provided with means for cutting the same into and out of circuit, a plurality of lamps having glowers connected in parallel to the source and heaters connected in series, and controlling-switches for the glower-circuits which are actuated simultaneously from the heater-circuit.

3. In a system of distribution for electric lamps of the type described, a source of current, a plurality of glowers connected in parallel to said source, heaters for said glowers connected in series, a making and breaking switch for each glower-circuit, a switch in the heater-circuit, an electromagnet-coil in the heater-circuit adjacent to each glower-circuit switch, an armature for each coil and connections between the same and the movable member of the switch for moving the latter into and out of engagement with the stationary member by successive closing movements of the heater-circuit switch.

In testimony whereof I have hereunto subscribed my name this 19th day of February, A. D. 1900.

ALEXANDER JAY WURTS.

Witnesses:

HENRY NOEL POTTER,
HUGH ANDREW CROOKS.